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general assent, especially as we see that the importance of the subject does not require exaggeration. Of course the individual farmer or gardener could, by intelligent and careful management, if he knew just what to do, increase the value of his own birds far beyond his individual share of the above-mentioned general aggregate.

"It is thus made probable that the birds intervene continuously between us and the complete destruction of our most important industries, the irretrievable financial ruin of nearly our whole population."

In conclusion, Mr. Forbes does not, with his present knowledge of economical entomology, attach any great economical value to the thrush family; it appears from his paper that they often eat many insects beneficial to agriculture, particularly ground beetles, still he would treat this question with careful conservatism, and not turn the delicate balance of nature by the extermination or undue breeding of birds.

ZOOLOGICAL NOTES.—The study of the Siphonophores is advanced by two excellent papers by Mr. W. J. Fewkes, in the Proceedings of the Boston Society of Natural History, one on the structure of *Rhizophysa filiformis*, and the other on the tubes in the larger nectocalyx of *Abyla pentagona*, both Mediterranean forms. Mr. Tewkes has added three Siphonophores to our New England fauna.—To the same number of the Proceedings, Dr. W. K. Brooks contributes a paper on the development of the digestive tract in Mollusks.—Dr. Fritz Müller has discovered a minute Ostracod Crustacean, like Cythere, living in the tree tops of the Bromeliaceæ in Southern Brazil. It appears that these tree tops harbor a host of animals, including the larvæ of insects, even the tadpoles of treefrogs here undergoing their transformations.—The process of respiration in some Crustacea, as *Astacus*, certain Phyllapoda and Cladocera, has been shown to be in part carried on in the anus; in *Leptodora*, as shown by Weismann, this is the exclusive mode of respirations. Mr. Hartog now shows (in the *Quarterly Journal of Microscopical Science* for April) that it occurs in several Copepod Crustacea. He also describes how the Hydra swallows its prey. The part played by the tentacles ceases as soon as the mouth comes in contact with the food. The hydra then slowly stretches itself over the food and engulfs it, the tentacles usually turning away from the food.

ANTHROPOLOGY.¹

A DICTIONARY AND GRAMMAR OF THE AIMARÁ LANGUAGE.—The literature of aboriginal languages has just been favored with an important addition in the shape of a "Dictionary and Grammar of the Aimará language," spoken in the southern portion of Peru, by the Collas (pron. Cól yas) and other tribes. This language is

¹Edited by Prof. ORIS T. MASON, Columbian College, Washington, D. C.

closely related to the Kechua, or Quichua, and in our century its area is geographically surrounded on all sides by various Kechua dialects. Aymar  is a highly developed language, though much less studied by scientists than the Kechua, because this had the prerogative of being the idiom of the ruling portion of the Peruvians and their Incas just previously to the Spanish conquest. Aymar  has many grammatic and lexical forms more archaic than Kechua, Chancu, Atacama, and other cognate dialects, and this circumstance renders its study most useful for tracing comparisons. The work alluded to is a republication of the *Vocabulario y Arte de la Lengua Aymara*, conq esto por el P. Ludovico Bertonio; Leipzig, Teubner (B. G.), 1879, 8vo., 3 vols. This is a fac-simile edition of Bertonio's work, which was composed as early as 1603, the Dictionary being dated 1612; and the scientist to whom we owe the republication of this rare set of volumes is Mr. Julius Platzmann, favorably known already by his republication of ancient materials for the study of Brazilian languages and by other works of kindred import. The Aymar  dictionary, consists of two parts: Spanish-Aymar , and Aymar -Spanish, each forming a separate volume; and gives the meaning of 12,000 or more terms of the language.—A. S. Gatschet.

ANTHROPOLOGY IN FRANCE.—The first number of *Revue d'Anthropologie* for 1880, appears promptly with the following contents:

AMEGHINO FLORENTINO.—Armes et instruments de l'homme pr historique des Pampas, pp. 1-12, Pl. I-III.

ROYER, MME. CLEMENCE.—Le Syst me pileux chez l'homme et dans la s rie des mammif res; pp. 13-26.

BENZENGUE, DR.—Les Sourds-Muets de Moscow; pp. 27-33.

WAKE, C. STANILAND.—La barbe consid r e comme caract re de Races; pp. 34-77.

R vue Critique upon Schliemann's discoveries, by M. Girard de Rialle.

R vue pr historique, Poland, Germany, Italy, France, Portugal.

R vue des Livres: Roberts's "Manual of Anthropometry," Retzius's "Finnish Crania," Quatrefages and Hany's "Crania Ethnica."

R vue des Journ aux. French, Italian, English, American, Russian, German.

M. Ameghino, the author of the first article, gave the readers of the *Review* a very extended account of the arch ology of the pampas, in a former number (II, 2-Serie), prefacing it with a r sum  of everything good and bad which he had been able to find upon the great antiquity of man in America. After giving an account of the geological formations containing relics and remains, and describing the implements met with, the author concludes with the following paragraph: "I affirm the contemporaneity of man with the great extinct *edentata* of South America, but I cannot assert that they were Tertiary. I have said that the geological age of the formation is unsolved; my impression is that it is Pliocene Tertiary."

The article of Mme. Royer is designed to show that the human race is descended from a species of animals that never had any hair, in opposition to the generally received theory that our race has lost its hair in time. Following close after this comes Mr. Wake's paper upon the beard, and on pages 170-175, a review, by M. Vars, upon Ecker's "*Système pileux et ses anomalies chez l'homme*," so that three-fourths of the original communications of the number relate to this external characteristic. After a very extended collation of authorities who have remarked upon the abundance or scarcity of hair upon tribes in all parts of the world, Mr. Wake concludes with Peschel that the beard is a good racial characteristic, and "that there are races upon whom it is developed in all its exuberance, while there are others in which this distinction appears to be incompletely produced." The author then goes on to seek the causes of this difference. The growth of hair upon the face cannot be attributed to such causes as alimentation and climate. Doubtless these have had their effects; but the true cause must be sought in the sum total of all the influences, moral as well as physical, to which the organism has been subjected. According to this theory, the most general and complete development of the beard should be sought among the races which have been most favorably situated or the longest exposed to the conditions favorable to its production. Beardless races, in this sense, may be compared to children, and those that are bearded to adults. If the beard be a social mark, we seem to be authorized to affirm that bearded races are more nearly related to one another than to those that are beardless.

M. Sauvage presents, on pp. 119-125, a review of parts VII and VIII of De Quatrefages and Hamy's "*Crania Ethnica*," relating to the Papuans, and Dr. Collineau, from p. 124 to p. 128, draws attention to an inaugural thesis of Dr. G. Calmettes "*Upon the medio-frontal, or metopic suture*."

The Peabody Museum receives a flattering notice, pp. 145-158, from the pen of Dr. Topinard, in which the author speaks of "the most important museum of anthropology in the United States." The work of the institution from the beginning is very well reviewed.

MR. MACLEAN'S CONTRIBUTIONS TO ARCHÆOLOGY. — We are indebted to the publishers, Robert Clarke & Co., of Cincinnati, for three archæological works by Mr. J. R. Maclean, "*A Manual of the Antiquity of Man*," eighth edition, 1879; "*Mastodon, Mammoth and Man*," second edition, 1880; and "*The Mound-builders*." The first named volume exhibits a great deal of research and patient work on the part of the author, but we are forced, in candor, to offer a few criticisms. The authorities are not carefully selected. The main reliance are Lyell, Figuier, Buchner (Büchner?), Denton, Lubbock, Lartet, Keller, some of them very good, but Rau, Wyman, Evans, De Mortillet, Chantre

and many other later distinguished archæologists and critical historians of the East are not mentioned. The restoration of the Neanderthal man, accredited to Mr. Cushing, is evidently copied from the plaster cast in Ward's Museum, at Rochester. The well established principle of law and science that the prisoner and not the court has the benefit of the doubt, is sometimes inverted, and all doubtful cases are claimed as evidence on the author's side. Upon this point we would utter the caution that to the anthropologist the antiquity or non-antiquity of man, *an und für sich*, are alike indifferent. The truth is above all. Mr. Huxley assured his hearers at the last meeting of the British Association, that the discoveries of M. Boucher de Perthes, in the Somme valley, are not near so ancient as they are claimed to be. At the same meeting Prof. W. Boyd Dawkins read a paper on the geological evidence of the antiquity of man, of which the following is an abstract. "The evidence which geology has to offer as to the antiquity of man is as follows: In the Eocene age there were only families and orders of living Mammalia, and no living genera or species. It is, therefore, hopeless to look for man at this time in the earth's history. In the succeeding or Miocene age, living genera of mammals appear, but still no living species of Mammalia. If the flints found at Thenay, and supposed to prove the existence of Miocene man, be artificial, and be derived from a Miocene stratum, there is, to my mind, an insuperable difficulty in holding them to be the handiwork of man; seeing that no living species of quadruped was then alive, it is to me perfectly incredible that man, the most highly specialized of all, should have been living at that time. The flints shown to me in Paris by Prof. Gaudry, appear to be artificial and partly natural; some of the former from their condition, having been obviously picked up on the surface of the ground. It is less difficult to believe them to have been the work of the large extinct anthropoid apes then living in France, than to view them as the work of man. Nor in the succeeding Pliocene age is the evidence more convincing. As the evidence stands at present there is no proof, on the continent or in this country [England], of man having lived in this part of the world before the middle stage of the Pleistocene age, when most of the living Mammalia were then alive, and when mammoths, rhinoceroses, bison, horses, Irish elks, lions, hyenas and bears haunted the neighborhood of London, and were swept down by the floods of the Thames as far as Erith and Crayford." In our own country, the occurrence of acorn mortars with crania resembling those of the modern Numas, in the Pliocene tertiary, should be vouched for by a professional archæologist, who removed them with his own hands, before any importance should be attached to them whatever. In the definitions of terms Mr. Maclean is a little unfortunate; as, *Brachycephalic*, a skull whose transverse diameter exceeds the antero-posterior diameter; *Dolico-*

cephalic, a skull whose diameter from the frontal to the occipital bone exceeds the transverse diameter.

The second named volume supplies a real need. It has been favorably reviewed before in these notes; but, since the mastodon and the mammoth are so frequently mentioned in connection with priscan man, a résumé of what is known of them in a handy manual is exceedingly timely and we repeat our praise.

Mr. Maclean's third volume, "The Mound-builders," in its first twelve chapters, reviews what has been written concerning this mysterious race, and gives the author's speculations about their earthworks, arts, civilization and antiquity. The second part, pp. 153-230, is more valuable, with all deference, than all the rest of the author's publications put together. It is a kind of work that we never weary in praising. These chapters will be quoted when all the rest is ignored. It comprises the archæology of Butler county, Ohio, with a map, giving, township by township, a complete report on a county which was one of the most important seats of the Mound-builders. Assisted by an able corps of gentlemen, the attempt was made to search out every enclosure and locate every mound. Some of these surveys are old, but many of them are for the first time made public. The author gives, on pp. 229 and 230, a table of all the private archæological collections in the county, with a classified list of specimens in each.

THE PROTECTION OF ANTIQUITIES.—Upon a motion made by M. Henri Martin, a member of the National Institute, the Anthropological Society of Paris, at its session of December 5, 1878, passed a resolution that a committee be nominated to wait upon the Minister of Public Instruction in order to confer with reference to the preservation of the megalithic monuments of France.

The minister, favoring the proposition, requested the Anthropological Society and the Committee upon Historic Monuments to nominate the members of the Commission. On the 21st of November, 1879, a Sub-committee was added to the Committee upon Historic Monuments with instructions to draw up an inventory of megalithic monuments and erratic inscribed boulders both in France and in Algiers. The committee consists of the following distinguished archæologists: *president*, M. Henri Martin; *vice-presidents*, M. Daubrée, director of the School of Mines, and M. de Mortillet, assistant curator of the Museum of Saint-Germain and professor in the School of Anthropology; *members*, MM. Paul Broca, director of the school of anthropology and general secretary of the Société d'Anthropologie, Emile Cartailhac, editor of "Materiaux pour l'Histoire Primitive de l'Homme," Ernest Chantre, assistant director of the Museum of Natural History, Lyons; Falsan, Leguay, Pomel, Trutat, curator of the Museum of Natural History at Toulouse; Salmond, Sommerard, curator of the Museum of Cluny; *secretary*, M. A. Violet le Duc.

The committee have already commenced operations. France is divided into five sections; M. Henri Martin has charge of Brittany; M. Salmon, of the North-east, M. Chantre, of the South-east; M. Cartailhac, of the South; M. Leguay, of the Center, and M. de Mortillet of the North-west. Algeria is entrusted to M. Pomel. M. Daubrée is specially charged with carved erratic boulders; M. Falsan, with the region of the Alps, and M. Trutat with the Pyrenees.

In accordance with this scheme the inventory of monuments is rapidly progressing, and a series of questions to observers has been issued.

ANOTHER ELEPHANT PIPE.—From Prof. J. D. Putnam, secretary of the Davenport Academy of Natural Sciences, we have received photographs of three interesting pipes from Iowa, one of them representing an elephant. Mr. Putnam writes: "The elephant pipe is of especial interest as confirming the genuineness of the one previously found, being made of the same fine sandstone. It was found by the Rev. J. Gass and the Rev. A. Blumer in a mound on the farm of Mr. Hass, two miles east of Grandview, Louisa county, Iowa, in a bed of ashes, beneath a bed of hard burned clay. There were no indications of disturbance in the mound and the pipe was taken out by the gentlemen with their own hands. There is no reasonable doubt of its authenticity.

ANTHROPOLOGICAL NEWS.—Prof. Morse's Prehistoric researches in Japan are criticised by Mr. Dickins, in *Nature* of Feb. 12th, and the high antiquity of the shell-heaps seriously called in question. "Remains and traces of shell-heaps of quite modern date are common in the provinces of Musashi and Sagami, at a considerable distance from the shore." "I should hesitate to assign a higher antiquity to the Omori heaps than the thirteenth or fourteenth century, and it seems to me probable that they were the work of an Aino race."

Prof. A. R. Grote, of Buffalo, N. Y., has lately published through Asa K. Butts, an "Essay on the Bible Narrative of Creation," being a commentary on Genesis i-ii. Whatever opinion our readers may have as to the weight of authorities quoted, or concerning Prof. Grote's ability to guide us in this most intricate problem, no one will question his scientific attainments or his disposition to treat the subject fairly and his opponents kindly. The gist of the treatise is best given in the author's own words. "If there is one subject which now seems to me more important than another, it is the bearing of our recognition of the process of evolution upon the existing state of our religious creed. It is not that the teachings of Christ are to be rejected, or the morality of the Hebrew Bible to be condemned, but that we are to correct our views as to the way in which existing plants and animals (including man) came to be what they are to-day. For Astron-

omy and Geology the struggle is nearly over. Out of this struggle has sprung the fatal error of believing that our knowledge in these branches does not contradict Genesis, or that a reconciliation is possible. But with biology the struggle is now going on. It is imagined that the six days mean really periods, although from the context the meaning is shown to clearly agree with the words, since the morning and evening are given to limit the term and decide the intention. It cannot, indeed, be too often remembered that people did not write in early times what they did not mean. The study of Genesis, or the origin of things, religion must surrender to the sciences."

Société d'Anthropologie de Paris. Bureau for 1880. President, M. Ploix; vice-presidents, M. Parrot and M. Thulié; secretaries, MM. Bordier, Pozzi and Magitot; curator, M. Topinard; librarian, M. Dureau; treasurer, M. Leguay; publishing committee, MM. de Ranse, Bataillard, Dally.

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GEOLOGY AND PALÆONTOLOGY.

ARTIFICIAL FORMATION OF THE DIAMOND.—Great interest has been excited in England during the last few months, by several reports of the artificial manufacture of the diamond. The earlier reports appear to have been founded in error, but success seems